


Year 2005 Report
on
Activities to Implement
**Washington State's Water Quality Plan
to Control
Nonpoint Source Pollution**

February 2006



Department of Ecology
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Prepared by William A. Hashim

Department of Ecology

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Conservation Commission (CC)
Washington State University, Cooperative Extension (WSU)
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Department of Health (Health)
Department of Natural Resources (DNR)
Parks and Recreation Commission (Parks)
Puget Sound Water Quality Action Team PSWQAT)
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Table of Contents

Executive Summary	iii
Chapter 1 Introduction.....	1
Land Use and Nonpoint Source Pollution.....	1
Chapter 2 How EPA’s 2005 319 Grant to Washington State was Distributed	3
Ecology’s Grant and Loan Program.....	4
Direct Implementation Fund (DIF)	13
Water Quality Program’s Support Projects.....	14
Chapter 3 Water Quality in Washington State	17
Ambient Monitoring.....	17
Washington’s Water Quality Assessment	18
Total Maximum Daily Loads (TMDLs).....	19
TMDL and Best Management Practices Effectiveness Monitoring Program.....	20
Chapter 4 Are Programs Identified in the Plan Effective?	21
Washington State Agency Nonpoint Workgroup.....	21
Progress on Meeting Nonpoint Plan Commitments	22
<i>Forest Practices</i>	22
<i>Urban/Rural Growth</i>	24
<i>Habitat Alteration</i>	25
<i>Education</i>	27
Chapter 5 What Changes in Strategy are Needed to Improve Effectiveness	29
Challenging Issues for 2006	29
<i>Influencing Local Land Uses</i>	29
<i>Outcome Performance Measures</i>	30
Striving for Success.....	31
Appendix A List of Cooperators	33
Appendix B Table 5.1 Actions to Manage Nonpoint Pollution in Washington State (2005—2010).....	35

List of Figures and Tables

Figure 1.1	Land Use Changes in Washington State	2
Figure 1.1	319 Expenditures 2005	3
Figure 2.2	Total Washington State Grants and Loans	5
Table 2.1	Water Quality Grants and Loans 2005	6
Table 2.2	Direct Implementation Fund 2005	13
Figure 3.1	Numbers of Listings for Nonpoint Pollutants, 2004	19
Table 3.1	Cumulative TMDLs 2005	19
Table 4.1	Director's Designees--as of December 31, 2005	21
Table 4.2	RMAP Data through 12/31/2004	24

Executive Summary

Implementing *Washington State's Water Quality Management Plan for Controlling Nonpoint Source Pollution* over the past four years has been a great lesson in patience, cooperation, and determination. We know that controlling nonpoint sources of pollution takes time, and showing improvements in water quality follows. It is not simply an end-of-the-pipe fix; rather it is a long often arduous attempt at changing people's view of the land and land uses.

However, dynamic movement is being made to control all causes of pollution. Some of the programs that are discussed in more detail in this report are:

Forestry

- > Road Maintenance and Abandonment Plans

Urban Areas

- > Clearing and Grading Ordinances

Habitat Alteration

- > Restoring Riparian Areas

Education

- > Lower Hood Canal

Eleven state agencies in Washington State have responsibility for the programmatic control of nonpoint sources of pollution. In order to work together effectively, the Washington State Agency Nonpoint Workgroup was formed four years ago and continues to function in an effective and cooperative manner.

Finally, no matter how hard the state tries to improve water quality, the ultimate entities responsible are local governments, tribes, landowners, and interested citizens. We have captured a series of success stories that show how effective and innovative local people are in controlling their environment and the quality of their water.

More work needs to be done, but we will continue on until the job is done.

Chapter 1

Introduction

The major initiative during 2005 was the focus on developing the five-year update of the state's nonpoint plan. Scheduled to be published in early winter 2005, increased coordination and cooperation from other Washington State agencies pushed back the publication date to June 2005.

The five-year update was developed in three volumes:

- Volume 1 of the revised plan (Water Quality Summaries for Watersheds in Washington State, formerly Appendix A) is available.
- Volume 2 identifies major programs that are used to help identify and control nonpoint sources of pollution.
- Volume 3 identifies the management strategies to control nonpoint source pollution that will be the state's priorities for the next five years. We learned many lessons from the previous five years' worth of implementation activities. Volume 3 captures these lessons.

The most important lesson learned is the need to continue fostering relationships at the local level. We also learned that the majority of nonpoint source pollution is generated through local land use activities. In order to control polluted runoff, state and federal agencies, local governments, tribes, special purpose districts, and citizens need to work together. The management strategies build upon these lessons by developing a set of activities that promote connections and relationships.

Land Use and Nonpoint Source Pollution

Nonpoint pollutants are introduced into water through runoff. Rainfall and snow melt wash pollutants from the land into rivers, streams, lakes, oceans, and underground aquifers. Land use is strongly correlated to nonpoint pollution. Therefore, to manage nonpoint pollution, we must focus on land use activities.

The intensity of environmental impact from each land use differs. For example, urban districts, making up about 3.5 percent of the land base, are generally under the highest environmental stress. On the other hand, park areas, with far more land area in the state, cause minor environmental impact. Agricultural and forestry land uses account for approximately 63 percent of land in the state, which may give an initial impression that the state has large land areas that do not contribute much pollution. Figure 1.2 shows changes to land use over the last 8 years.

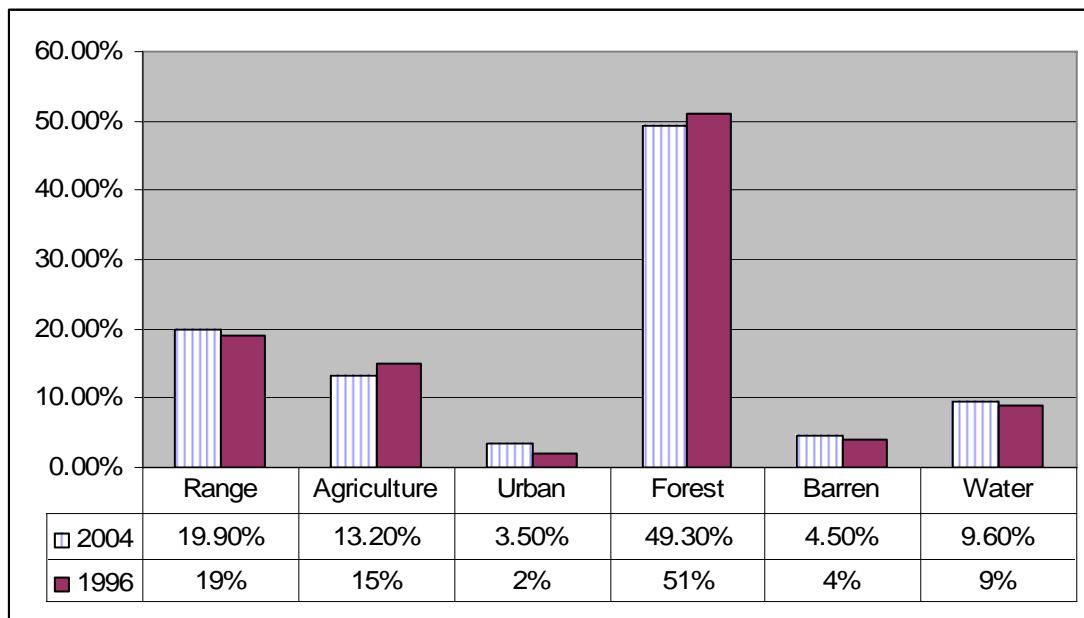


Figure 1.1
Land Use Changes in Washington State

During the 1990s, an average of about 130,000 people moved into the state each year. That, combined with increased birth rate, forced an increase in construction and development. Most of this growth originally centered in urban districts associated with metropolitan Puget Sound, the I-5 Corridor, the I-82 corridor, and the Spokane area. More recently, however, growth has spread throughout the state, with rates ranging from 0.3 percent annual growth in the rural southeastern part of the state, to 5 percent growth in Clark County. The growth in Clark County is more than double the statewide rate of 2.3 percent.

What does population growth have to do with nonpoint source pollution? Simply stated, a major factor is the increase of impervious surfaces associated with increases in housing, roads, and business areas. When pavement, roofs, and other hard surfaces replace forests, meadows, and other natural areas, they generate stormwater runoff. Stormwater runoff picks up oils, grease, metals, yard and garden chemicals, dirt, bacteria, nutrients, and other pollutants from paved areas, and carries them to streams, rivers, wetlands, and other water bodies without the benefit of filtration and treatment from travel through soil and vegetated riparian zone.”

In the following chapters we will discuss the programs being implemented to solve this ever growing problem.

Chapter 2

How EPA's 2005 319 Grant to Washington State was Distributed

There are three major workplan elements

1. Local Grant and Loan Funding—Money was allocated and disbursed under the current water quality grant program as competitive grants to local governments, tribes, special purpose districts, and not-for-profit groups during this last year. The application process for the Centennial Clean Water Fund, SRF, and 319 funding cycle is administered by the Financial Assistance Section of the Water Quality Program. Applicants requesting grants and loans for nonpoint projects must implement plans and program identified in Volume 1 of the nonpoint plan.

2. Direct Implement Fund—Through its Enhanced Benefit Status, Ecology has developed the Direct Implementation Fund (DIF). This fund is only available to state agencies for projects that would assist in implementing program development projects clearly described in the work plans and which implement actions identified in Table 5.1 of the nonpoint plan. Activities must be beyond the current responsibilities of the agency as mandated by our legislature. State agencies submit applications for activities for which they are designated as lead in the plan. Projects are identified and prioritized by the State Agency Nonpoint Workgroup.

3. Water Quality's Nonpoint Program Support Projects—Ecology staff is funded for projects that directly support the state's nonpoint program.

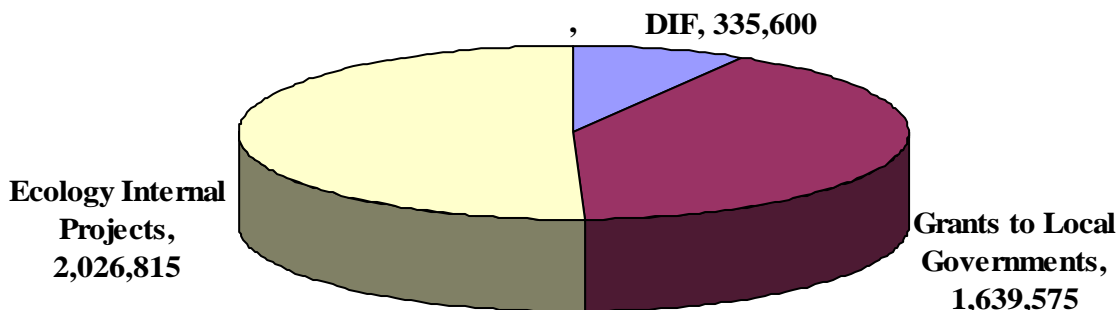


Figure 1.1
319 Expenditures 2005

Ecology's Grant and Loan Program

Ecology's Water Quality program administers three major funding programs that provide grants and low-interest loans for projects that protect and improve water quality in Washington State. Ecology acts in partnership with state agencies, local governments, and Indian tribes by providing financial and administrative support for their water quality efforts. As much as possible, Ecology manages the three programs as one; there is one funding cycle, application form, and offer list. The three programs share guidelines, a single application, and a common funding cycle.

Volume 1 of the nonpoint plan provides a series of summaries that profile each major watershed in Washington State. The information contained in these watershed summaries can be used to better understand the relationships between demographics, land-use activities, and water quality problem areas. Data from the summaries can be used to help support watershed-based planning efforts and subsequently, those local water quality plans that are incorporated into Volume 1 will be adopted by reference as part of Washington State's overall water quality plan.

In order to be eligible for grants or loans to control nonpoint source pollution, an applicant must address one of three elements in Volume 1:

1. A 303(d) listed problem area;
2. An impacted beneficial use; and
3. An existing plan or program.

The Centennial Clean Water Fund (CCWF)

CCWF provides grants and low interest loans to fund related activities to reduce nonpoint source pollution. In 2005, a total of 23 projects were funded to control nonpoint sources of pollution or to restore habitats affected by land use that exacerbate nonpoint parameters.

The State Revolving Fund (SRF)

SRF provides low-interest loans for treatment facilities and related activities to reduce nonpoint sources of water pollution. In 2005, a total of 5 nonpoint projects asked for and received loan funds to implement nonpoint programs.

Section 319

319 grants provide funds to reduce nonpoint sources of water pollution. In 2005, a total of 11 projects were funded with 319 funds.

The SFY2005 funding cycle provided the following totals for Washington's nonpoint grants and loans:

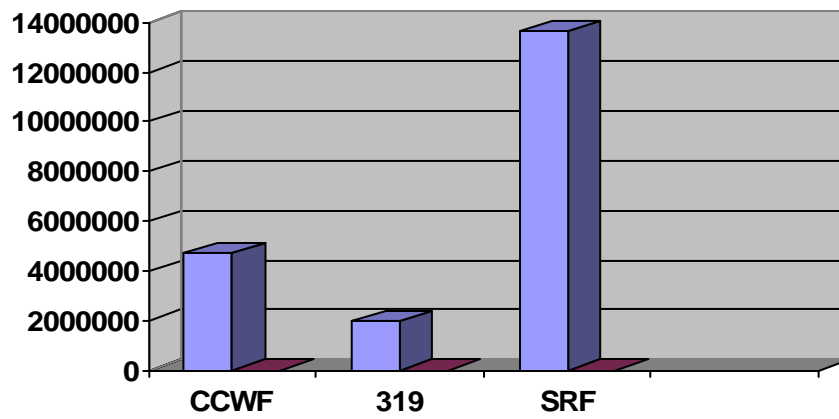


Figure 2.2
Total Washington State Grants and Loans

Project descriptions for all three fund sources follow:

Table 2.1
Water Quality Grants and Loans 2005

Applicant Name	Project Title and Description	Proposed Funding		
		Centennial	Section 319	SRF
Kitsap County	Long Lake Management and Clean-up --Funds were identified through an appropriation proviso contingent on the lake communities adopting a lake management plan that meets Ecology's requirements.	\$750,000		
Pierce County	Wapato Lake Clean-up —Funds were identified through an appropriation proviso contingent on the lake communities adopting a lake management plan that meets Ecology's requirements.	\$50,000		
Mason County	Septic System Surveys and Database —Funds were identified through an appropriation proviso to allow Mason County to survey septic systems for failure and to begin electronic storage of as-builts.	\$320,000		
Kitsap County	Septic System Surveys --Funds were identified through an appropriation proviso to allow Kitsap County to survey septic systems for failures.	\$70,000		
Jefferson County	Septic System Surveys --Funds were identified through an appropriation proviso to allow Jefferson County to survey septic systems for failures.	\$70,000		
Clark Conservation District	Regional Livestock Inventory --Our project consists of a regional livestock inventory, development of a database and maps for project basins, landowner outreach and assistance, monitoring, and recommendations for long-term conservation strategies reflecting the collected data. This data will be made available to key stakeholders in the region.	\$239,625		
Mason County Dept of Health Services	Skokomish Annas Bay Restoration Study --Water quality monitoring and remediation of 303D listed waters. Monitor upland beach drainages to listed, shellfish downgrade threatened Annas Bay. Identify fecal contamination sources, work with high-risk landowners to educate, develop remediation. Monitor Skokomish River tributaries to identify and remediate bacterial sources. Provide real-world field science to K-12 students.		\$106,755	
Clallam County	Clallam County On-Site System Management Plan --This project will develop a long-term on-site septic system (OSS) management plan that will identify areas of high risk of pollution from OSS (e.g., marine shorelines, shellfish areas, and susceptible aquifers) and offer recommendations to prevent impacts to public health and the environment.	\$66,750		

Applicant Name	Project Title and Description	Proposed Funding		
		Centennial	Section 319	SRF
Clark Public Utilities	Salmon Creek Riparian Restoration --Salmon Creek has experienced gradual water quality degradation from land use practices and urbanization. This proposal will restore water quality and stream habitat through streambank protection, restoration, and re-vegetation practices. These established practices will reduce erosion, turbidity levels and improve overall water quality in Salmon Creek.	\$250,000		
Adopt-A-Stream Foundation	Quilceda Pollution Identification/Correction -- Conduct a stream survey of portions of Quilceda Creek and its tributaries, locate water pollution sources, identify responsible landowners, prepare corrective action prescriptions, establish landowner agreements to carry out corrective actions, and implement prescriptive action(s). Train volunteers to monitor corrective actions.		\$180,000	
Central Klickitat Conservation District	Little Klickitat TMDL Implementation Project --This project is designed to reduce temperatures in the Little Klickitat River by implementing BMPs in common with the goals and objectives of the TMDL's Detailed Implementation Plan. Riparian restoration, habitat improvement, monitoring, and public education and outreach are the activities that will be achieved by this project.		\$250,000	
Snohomish County	Snohomish County Septic System Program --Partner with Snohomish Health to address septic contributions in TMDL watersheds. Merge Health District's septic data with Surface Water's GIS system. Analyze TMDL watersheds to identify hotspots. Conduct sanitary surveys and provide technical assistance leading to repairs. Provide watershed-wide prevention-based owner training to ensure proper operation and maintenance. Effectiveness monitoring.	\$364,500		
Clallam Conservation District	Dungeness Comprehensive Water Quality Study --The goal of this project is to create a plan for water quality improvements and habitat restoration of the estuarine area between Meadowbrook and Cassalery Creeks in the Lower Dungeness Watershed. This will include investigation of the sources of contamination to the three streams in the study area as well as development of restoration strategies for the streams and their associated estuarine habitat.	\$87,900		
Thurston County	Woodland Creek Pollutant Load Reduction --Urban-level development in the unincorporated Woodland Creek watershed occurred using on-site septic systems and outmoded stormwater systems. Surface and groundwater pollution impairs shellfish harvesting, salmon habitat, and water supplies. Project will identify pollution sources and contributory areas, evaluate effectiveness and feasibility of alternatives, and recommend actions to correct these problems.	\$240,000		

Applicant Name	Project Title and Description	Proposed Funding		
		Centennial	Section 319	SRF
King Conservation District	Issaquah Creek TMDL Support --The King Conservation District (KCD) will provide small farm owners with education and technical assistance to improve water quality and fish habitat within the Issaquah Creek Basin. The KCD will provide workshops, a rain garden guide, farm tours, site visits and farm planning to address management of bacteria, nutrients, sediment and riparian zones.	\$195,000		
Thurston Conservation District	Thurston/Mason Equine Outreach & Education --Provide education on water quality best management practices (BMPs) to Thurston & Mason County area 4-H horse clubs, horse farms, and commercial stables through workshops, materials, and farm tours. Project will also provide farm plans, technical assistance, and cost-share to horse farm owners implementing BMPs that improve water quality and fish habitat.		\$239,375	
Underwood Conservation District	Wind River Small Acreages for Clean Water --This project is the education and outreach phase of a long-term TMDL Detailed Implementation Plan and Watershed Enhancement Project. Objectives include educating small acreage landowners about their impact on water quality, assisting in the implementation of BMPs on small acreages in the watershed, and increasing effective shade along stretches of the Wind River and its tributaries in order to improve water quality.		\$64,125	
Jamestown S'Klallam Tribe	Dungeness Clean Water Strategy Implementation --This proposal will implement three priority actions to achieve goals of two related TMDLs. Program tasks will include freshwater/marine microbial source tracking study, establishing a pet waste program, and effectiveness monitoring of at least three remediation sites. This proposal will match and fill gaps of existing cleanup and monitoring efforts.		\$203,387	
Kitsap Home Builders Foundation	Low Impact Development Standards Implementation --This project will work with Kitsap County, Suquamish Tribe and four incorporated cities to develop uniform Low Impact Development standards, assist in adapting and implementing these approaches/ techniques into their permitting processes while building the foundation for providing technical resources and guidance for developers to use "BUILT GREEN" in Kitsap.		\$182,550	
Mason Conservation District	Hood Canal Nutrient Management Program --Develop and Implement agricultural based incentive program to reduce nitrogen discharge into the Hood Canal by converting existing agricultural lands with cover crops that reduce off-site movement of agricultural nutrients. MCDOH will monitor the environmental effects of various nitrogen management options on agricultural lands by groundwater monitoring of nitrates.	\$115,500		

Applicant Name	Project Title and Description	Proposed Funding		
		Centennial	Section 319	SRF
Yakama Nation	Yakama Reservation Water Quality Investigation-- Determine existing conditions of surface waters to quantify pollutant sources and loads on the Yakima Reservation and discharging to the Yakima River; identify target areas for improvement, and improve water quality through irrigator outreach/education, regulatory enforcement, and application of appropriate TMDL recommendations (BMPs).	\$175,500		
Okanogan Conservation District	Bonaparte Creek Implementation Project-- Bonaparte Creek has high levels of fecal coliform and sediment. DNA testing will be performed to determine the fecal coliform source(s) and they will be addressed. Identified eroding streambanks will be planted to reduce sediment loads. Education of local residents in conjunction with garbage cleanup and plantings will be conducted.	\$41,441	\$208,559	
South Yakima Conservation District	TMDLs in Transition-- Assist landowners and local agencies in transitioning from the Lower Yakima River Suspended Sediment TMDL to the next anticipated TMDL addressing dissolved oxygen and pH violations -- violations that are likely a result of increased aquatic plant growth after decreasing turbidity through successful implementation of the suspended sediment TMDL.	\$120,050		
Roza-Sunnyside Board of Joint Control	On-Farm Irrigation Conversion Loan Program-- The Roza-Sunnyside Board of Joint Control proposes irrigation conversion projects to reduce sediment and associated pollutants in the Yakima river. This reduction in sediment delivery will be achieved by converting erosive methods of irrigation to best management practices. Irrigation water management, as well as nutrient and pesticide management, will also be achieved from the converted acreage. The water quality below the Parker Reach of the Yakima River will be improved by reducing the amount of turbidity, nutrients, pesticides, and bacteria associated with sediment loads. The reduction of sediment in the Yakima River will enhance fish and wildlife habitat.			\$4,000,000
Clallam Conservation District	Clallam Water Quality Improvement Project-- Technical and financial assistance will be provided to farm operators throughout Clallam County, with a continued emphasis on farms located within the Dungeness drainage that have yet to implement conservation plans. Outreach events include several workshops for farm operators and a countywide water quality program for 8th grade science students.	\$215,250		

Applicant Name	Project Title and Description	Proposed Funding		
		Centennial	Section 319	SRF
Hood Canal Salmon Enhancement Group	Mission Creeks Water Quality Restoration --The purpose of the grant is to identify the sources of fecal coliform bacteria pollution and contaminants toxic to salmon and shellfish in Mission Creek and Little Mission Creek Watersheds, implement remediation measures, and develop a focused community based watershed stewardship program to prevent future water quality degradation.		\$60,000	
Skagit Fisheries Enhancement Group	Finney Creek Temperature Reduction --Finney Creek suffers from abnormally high water temperatures during the summer months which can kill threatened juvenile salmonid species. This project will decrease high summer temperatures in Finney Creek by strategically placing large log jams in the stream to narrow the channel width and increase channel depth.		\$249,375	
Adams Conservation District	Palouse River Watershed Implementation Project --Lower Palouse River watershed water quality will be improved by riparian zone rehabilitation, exclusionary fencing, and off-stream livestock watering. Water quality monitoring will be conducted to assess effectiveness, support DOE efforts to determine area non-point pollution sources, and assist in educating WRIA 34 landowners to further Palouse TMDL development.	\$249,750		
Mason Conservation District	Totten/Eld Inlet TMDL Response --TMDL Direct Implementation Plan development at the local level. Early implementation of TMDL through on-site sewage system and agricultural BMP evaluation and implementation, with outreach elements designed to enhance stakeholder participation in TMDL plan development. Follow-up of work performed in watershed to quantify effectiveness of historical efforts.	\$250,000		
Snohomish Conservation District	Small Farm TMDL Prioritization --This project involves implementing best management practices and providing technical assistance to landowners district-wide. However, priority areas (to target efforts) will be based on TMDLs and on an initial inventory of high impact, animal-dense areas, and critical surface water sources. Educational events and outreach to landowners will also be a focus.	\$188,250		

Applicant Name	Project Title and Description	Proposed Funding		
		Centennial	Section 319	SRF
King County Dept of Natural Resources and Parks	Cottage Lake Phosphorus Reduction --Reduction and control of phosphorus pollution in Cottage Lake and its inlet streams. Project steps will include community education, water quality monitoring, habitat assessment, and habitat restoration. Education will focus primarily on phosphorus reduction at the homeowner and local business level. The education component will also include educating residents and businesses in the area about proper septic system maintenance. Monitoring and assessment will help determine current phosphorus loading to the lake including inlet streams as well as monitor fecal coliform levels in the lake and streams. Restoration projects will focus on shoreline plantings along the lake and stream corridors on private and King County lands.	\$218,796		
Nooksack Salmon Enhancement Association (NSEA)	South Fork Nooksack Tributaries Restoration --NSEA will improve water quality and salmon habitat in key South Fork Nooksack tributaries degraded by agricultural land use. The project will involve livestock exclusion (2000 feet of fencing), riparian revegetation (40-100 foot buffers), and LWD placement (15 - 20 structures) along over 5000 feet of stream channel.		\$202,500	
Snohomish Conservation District	Stillaguamish Sub-basin TMDL Improvements --This project involves implementing best management practices and providing technical assistance to landowners district-wide. However, priority areas (to target efforts) will be based on TMDLs and on an initial inventory of high impact, animal-dense areas, and critical surface water sources. Educational events and outreach to landowners will also be a focus.	\$171,750		
Pend Oreille Conservation District (POCD)	Pend Oreille TMDL Data Gathering --Project will collect field and laboratory water quality data on private lands, targeted, but not limited to, those connecting to USFS "Category 5" reaches, according to "DOE's 2002 / 2004 Proposed Assessment." Sites chosen by POCD, USFS, and other agencies will allow a more comprehensive watershed TMDL.	\$250,000		
Seattle Public Utilities	Thornton Creek Water Quality Channel --This project will remove pollutants and attenuate flows from stormwater discharge in Thornton Creek. Stormwater from a 670-acre urban sub-basin will be conveyed to a series of water quality swales with sediment basins for treatment. Landscaping and pathways will provide 2.7 acres of public access.			\$6,819,995
Island County Health Department	On-Site Repair Financial Assistance Program --The program continues a local loan fund providing financial assistance to private citizens to repair failing on-site sewage systems. A priority system is used to identify and fund failing systems with the most critical water quality, public health, and citizen need for low interest funding.			\$300,000

Applicant Name	Project Title and Description	Proposed Funding		
		Centennial	Section 319	SRF
Seattle Public Utilities	Urban Runoff Treatment --This project will reduce levels of fecal coliform bacteria in three Seattle creeks (Thornton, Pipers, Longfellow) through disinfection by ultra violet light.			\$1,034,000
Spokane County Conservation District	Bi-County Direct Seed Assistance Program --The Bi-County Direct Seeding Assistance program will promote the implementation of direct seeding in Spokane and Adams counties, resulting in decreased erosion and improved water quality. Low interest loans provided to agricultural producers will facilitate the purchase of direct seeding equipment making the transition to conservation tillage economically feasible.			\$1,485,914
Total Nonpoint Grants and Loans		\$4,700,062	\$1,946,626	\$13,639,909
Number of Projects Funded		23	11	5

Direct Implementation Fund (DIF)

The Department of Ecology developed the Direct Implementation Fund (DIF) after the first state nonpoint plan was approved by EPA in April 2000. This fund is available to state agencies which are members of the State Agency Nonpoint Group for projects that will implement the nonpoint strategies identified in Table 5.1 of the nonpoint plan. Agencies apply for funding to implement eligible activities, which cannot be their mandated and funded responsibilities.

Successful DIF projects are activities that go beyond agency funded mandates, seek to maximize coordination of agency activities, and provide for collaborative opportunities. State agencies submit applications for activities for which they are designated as lead or co-lead. Projects are rated and ranked by the State Agency Nonpoint Workgroup. The workgroup is responsible for developing the eligibility requirements and rating criteria. As part of the evaluation process, the work group also strives for an equitable distribution of funds to agencies, project types, and geographical locations.

Table 2.2
Direct Implementation Fund 2005

State Agency	Final Ranking	Project Title	DIF Request	DIF Offer	Running Total
DOH	1	Tracking and Assessing NPS at Shellfish and Swimming Beaches	\$12,061	\$12,061	\$12,061
ECY	2	American River Steward	\$5,000	\$5,000	\$17,061
ECY	3	Social Marketing for Clean Water	\$9,000	\$9,000	\$26,061
WDFW	4	Stream Habitat Restoration Guidelines	\$50,000	\$50,000	\$76,061
CTED	5	Sample Critical Areas Ordinance for Small Cities	\$32,000	\$32,000	\$108,061
WSU	6	Rain Garden Design Manual	\$43,219	\$43,219	\$151,280
WSU	7	Certified Shore Stewards	\$46,290	\$46,290	\$197,570
DNR	8	Forest Practices Illustrated	\$61,838	\$61,838	\$259,408
PSAT	9	Low Impact Development Local Regulation Assistance Program	\$50,000	\$50,000	\$309,408
CC	10	Mitigate Atmospheric Deposition	\$50,000	\$26,192	\$335,600
WSU	11	Phosphorus Management for Livestock Operations	\$50,000	0	\$335,600
ECY	12	Install Bridge over Wilson Creek	\$32,600	0	\$335,600
WSU	13	Washington Watershed Academy	\$50,000	0	\$335,600
		Totals	\$492,008.00	\$335,600.00	

This is only the fourth round of DIF projects. However, the expectations are high that they will continue to yield tremendous benefits to water quality through the development of new programs, educational activities, sample ordinances, and increased communication and cooperation among state agencies.

Water Quality Program's Support Projects

1. Nonpoint Policy and Plan Coordination 2005 (2 FTE)

Ecology is responsible for overseeing and coordinating overall plan implementation activities. Part of that role entails compiling progress reports and reporting back to EPA; taking the lead in coordinating with other Ecology programs; facilitating the state agency nonpoint workgroup; implementing activities that have a statewide applicability; and performing technical outreach about the plan with local governments, tribes, and special purpose districts. In addition, Ecology is responsible for statewide nonpoint policy and planning.

Estimated cost of this work plan component – \$ 293,955

2. Financial Administration 2005 (1.3 FTEs)

Staff of the Water Quality Program's Financial Management Section administers and manages all Section 319 grant funds passed through to local governments, Indian tribes, and public not-for-profit groups. Staff ensures that funds are allocated to highest priority projects and are spent in a fiscally responsible manner. Staff also closely tracks projects from initiation to completion.

Estimated cost of this work plan component – \$ 81,350

3. TMDL Nonpoint Education and Outreach 2005 (1 FTE)

Ecology initiates an intensive education and outreach effort as part of every TMDL. Our purpose is to ensure that people understand why we are doing a TMDL, what their responsibilities are likely to be, and how they can participate. A successful public process makes TMDL implementation more likely.

Estimated cost of this work plan component – \$ 101,537

4. TMDL Development and Implementation 2005 (3 FTEs)

The primary job of a TMDL lead is developing the TMDL and supporting documents for successful submission to and approval by EPA. This element includes knowledge of TMDL concepts and procedures and the ability to work effectively with diverse groups within and outside Ecology. Other products required from this work element include development of a summary implementation strategy (SIS), to go along with the TMDL, and a detailed implementation plan (DIP). Once these documents are produced, the TMDL lead tracks or coordinates implementation activities to meet the allocations set in the TMDL. In some cases, the TMDL lead manages grants awarded to local entities for TMDL implementation.

Estimated cost of this work plan component – \$ 260,811

5. Nonpoint Technical Assistance and Compliance 2005 (5 FTEs)

The purpose of this work plan element is to provide technical assistance to federal, state and local agencies, tribes, and special purpose districts to ensure their activities, projects, and programs meet state water quality laws and regulations. Areas of technical assistance include forest practices, agricultural activities, riparian restoration, and nonpoint source enforcement. This work plan element will apply in watersheds

that implement nonpoint TMDLs or in watersheds with plans that focus on protection of threatened waters or implementation activities to clean up waters.

Estimated cost of this work plan component – \$ 487,345

6.TMDL and Best Management Practices Effectiveness Monitoring 2005 (4.4 FTEs)

This work plan element designs and conducts monitoring studies to determine the effectiveness of nonpoint source management programs. Effectiveness monitoring studies will be developed for TMDL implementation, watershed management plan implementation, and other watershed-based clean up efforts. In addition, we will measure the effectiveness of specific implementation activities and the installation of BMPs to achieve the objectives of major statewide plans. Post TMDL monitoring is conducted to verify that the pollutant controls result in the water body meeting water quality standards. It also tests the effectiveness of the management programs carried out as a part of the implementation plan.

Estimated cost of this work plan component – \$ 466,535

Chapter 3

Water Quality in Washington State

Determining improvements in waters degraded by nonpoint sources of pollution is expensive and time consuming. It may take years of implementation activities before water quality improves, and even then, land use activities outside the realm of a cleanup plan may hamper cleanup efforts. In July 2003, Washington State's Final Report under the National Monitoring Program revealed just that conclusion.

The EPA 319-funded monitoring program goal was to determine the effectiveness of watershed-scale, nonpoint source pollution management programs in improving water quality. After 10 years of implementation and monitoring for fecal coliform bacteria, results were mixed. All streams monitored violated state water quality standards at some time during the study after BMPs were implemented.

Realizing the difficult nature of defining and controlling nonpoint source pollution, the state has developed strategies that will help in the overall management of our nonpoint program.

Ambient Monitoring

The Washington State Department of Ecology has conducted monthly water quality monitoring at hundreds of stream stations throughout the state for nearly 50 years.

- 82 stations are routinely sampled.
- Twenty "basin" stations are monitored for one year.
- Sixty-two "long-term" stations are monitored every year.

Measured indicators of water quality include the following:

ammonia	nitrate plus nitrite	phosphorus, total
conductivity	nitrogen, total	suspended solids
fecal coliform bacteria	oxygen	temperature
flow (at most stations)	pH	turbidity
metals (bimonthly, at a few stations)	phosphorus, soluble reactive	

Occasionally other constituents are sampled to meet special needs.

In 2001, we implemented a program to collect stream and air temperature data at 30-minute intervals. We deploy recording instruments at 40 to 50 (mostly) long-term stations from June through September. We are also developing a program to collect continuous oxygen data at these stations for a few weeks.

Washington's Water Quality Assessment

State, local, and tribal monitoring programs form the basis of Washington State's Water Quality Assessment. According to the 2004 assessment, the most common water pollution problems in Washington are high temperature, fecal bacteria, pH, low dissolved oxygen, metals, and nutrients. Most of these problems are caused by nonpoint source pollution, which is the primary source of pollution in rivers, lakes, and ground water. Although the state has fewer monitoring programs focused on toxic pollutants, we suspect that they are also a problem.

Ecology's primary means of reporting on the status of water quality is through the development of an integrated water quality monitoring and assessment report, based on EPA's *2002 Integrated Water Quality Monitoring and Assessment Report Guidance* (November 2001). *Washington State's Water Quality Assessment* satisfies Clean Water Act requirements for both Section 305(b) water quality reports and Section 303(d) lists. Ecology's Water Quality Program has adopted Policy 1-11 that describes the methods used for assessing information to evaluate attainment of water quality standards. The policy includes criteria for compiling, analyzing, and integrating data on ambient conditions with project implementation information. The policy describes how the state integrates data from numerous sources, collected for a variety of purposes under a variety of quality control practices. *Washington State's Water Quality Assessment* places water body segments into one of five categories. All waters in Washington (except on reservation lands) fall into one of the five categories, which describe the status of water, from clean to polluted. *Washington State's Water Quality Assessment* may be found on Ecology's website at <http://www.ecy.wa.gov/programs/wq/303d/2002/2002-index.html>

The typical pollutants from nonpoint sources and their relative frequency of detection in Washington are shown below. It should be noted that the water quality assessment is not a full accounting of the water quality problems in Washington. There are still many water bodies that have not yet been monitored.

The assessment helps us to use state resources more efficiently by focusing our limited time on water bodies that need the most work and to address the problem pollutants that show up most often. The list of water bodies in the assessment reflects local government, community, and citizen recognition of water quality problems in Washington - demonstrating citizen interest in, and commitment to, clean water. Some of the water quality data used to assemble the list were submitted by local governments and citizen groups. When citizens are involved in the process of assessing water quality, they often want to be involved in actions to improve it.

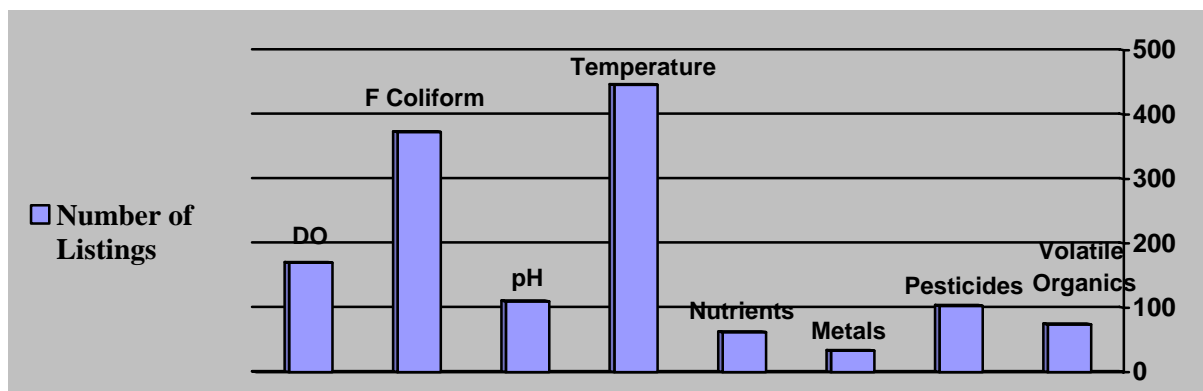


Figure 3.1
Numbers of Listings for Nonpoint Pollutants, 2004

Total Maximum Daily Loads (TMDLs)

After approval of the WQ Assessment by EPA, states are required to develop water cleanup plans for the waters in Category 5. These are called Total Maximum Daily Loads, or TMDLs. A load is the amount of a pollutant entering a water body.

An intense monitoring effort supports a TMDL study. Contributing sources of pollution are identified during the monitoring phase. Modeling helps determine the load reductions from each source needed to achieve water quality standards.

The TMDL agreement between EPA and Ecology set out some interim goals for completing the 1566 TMDLs required by the 1996 303(d) list. By the end of year five, which ended on June 30, 2004, Ecology was to have completed 249 TMDLs. The number actually completed was 339. Ecology was able to exceed the initial goal not only because of Ecology's efforts alone, but also because of the partnerships that were made with local governments, conservation districts, local landowners, and the U.S. Forest Service, who are assuming more responsibility for their watersheds.

Table 3.1
Cumulative TMDLs 2005

	Cumulative By Fiscal Year 2004	Cumulative By Fiscal Year 2006	Cumulative By Year 2013
The number of TMDLs required through the original settlement agreement	293	671	1566
The number of TMDLs required by the May 2001 Work Load Model update	398	766	1200

TMDL and Best Management Practices Effectiveness Monitoring Program.

The purpose of this program is to determine the effectiveness of nonpoint source management programs. Effectiveness monitoring studies will be developed for TMDL implementation, watershed management plan implementation, and other watershed-based cleanup efforts. In addition, we will measure the effectiveness of specific implementation activities and the installation of BMPs to achieve the objectives of major statewide plans. Post TMDL monitoring is conducted to verify that the pollutant controls result in the water body meeting water quality standards. It also tests the effectiveness of the management programs carried out as a part of the implementation plan.

Concluding thoughts on water quality

Documenting water quality improvements is an essential ingredient for any environmental management program. The state's nonpoint plan requires review, analysis, and change if that is needed to improve program effectiveness. However, because of the very nature of nonpoint source pollution, identifying water quality improvements and connecting to nonpoint source controls is extremely difficult.

Washington State has not been neglecting this effort, rather, state agencies are actively working on strategies and ways to "connect the dots" for a variety of beneficial uses. Nonpoint projects are one dot in the state that is engaged with numerous efforts, activities, programs, needs, resources, and fiscal constraints. We'll get it done, someday.

Chapter 4

Are Programs Identified in the Plan Effective?

Management and control of nonpoint pollution is a multi-agency effort. In Washington State, there are eleven key agencies that have primary responsibility for programs that are identified in the nonpoint plan. In order to understand and answer the question above, it is important to first convene the agencies responsible for implementing nonpoint programs, second to coordinate activities, and third, to determine collectively the effectiveness of the implementation activities as outlined in the nonpoint plan.

Washington State Agency Nonpoint Workgroup

Membership in the state agency nonpoint workgroup is primarily from within Washington State Government, and secondarily from other federal, state, and local governments managing nonpoint source pollution.

In October of 1999, the Director of Ecology sent a letter to Washington State agencies inviting membership on the workgroup. By January of 2000, most names were submitted, and in April the workgroup was formalized. A few months later a request was made and approval granted to establish the workgroup as a class one committee. Class one groups involve responsibility for major policy decisions and represent a significant demand on the time and resources of its members. It is expected that the role of this workgroup will expand as advanced planning and implementation of the state's nonpoint plan evolves.

Table 4.1
Director's Designees--as of December 31, 2005

Agency	Director 12/31/2005	Designee	Representative
Agriculture	Valoria Loveland	Kirk Cook	
Conservation Commission	Mark Clark	Stu Trefry	
Office of Community Trade and Economic Development	Juli Wilkerson	Doug Peters	
Cooperative Extension	Jim Zuiches	Dr. Ed Adams	Bob Simmons
Ecology	Jay Manning	Melissa Gildersleeve	Helen Bresler
Fish and Wildlife	Jeff Koenigs	Carl Samuelson	
Health	Mary Selecky	Selden Hall	
Natural Resources	Doug Sutherland	Carol Walters	
Parks and Recreation Commission	Rex Derr	Chris Regan	
Puget Sound Action Team	Brad Ack	Harriet Beale	
Transportation	Doug MacDonald	Tim Hilliard	

Progress on Meeting Nonpoint Plan Commitments

During this last calendar year, some exceptional activities have taken place. We highlight a few of those below:

Forest Practices

Road Maintenance and Abandonment Plans (RMAPs)

In Washington State, there are approximately 70,351 miles of forest roads. Unimproved forest roads are a leading cause of sedimentation of 1st and 2nd order streams, the headwaters of the state's rivers. Repairing degraded roads or putting to sleep abandoned roads has been a priority for forest practices. The two implementers of RMAP program are the U.S. Forest Service and Washington's Department of Natural Resources.

U.S. Forest Service, Year 5 Summary Report. April 2005.

The U.S. Forest Service and Ecology have a memorandum of agreement that holds the federal forest lands to the same milestones for road maintenance and abandonment as those in the state forest practices rules. The planning milestones focus on road assessments to determine water quality effects and fish passage barriers. Implementation milestones target road stabilization accomplishments.

Since 2000, planning efforts include assessment of approximately 12,200 road miles for aquatic risk, approximately 55 percent of the roughly 22,300 total miles. For roads analyzed, the aquatic risk rating distributions are: low (3,666 miles), moderate (3,967 miles), and high (4,536 miles). Based on extrapolation from existing assessments, professional judgment, and knowledge of the landscape, projections for total road miles estimated to be low aquatic risk exceed 12,500. Forests have also inventoried more than 1,200 culverts to determine if they are fish passage barriers. These represent over 95 percent of anadromous culverts and over 75 percent of resident culverts. Completed inventory work includes all the highest priority culverts; the remaining culverts are considered low to moderate priority.

Since 2000, National Forests have implemented road stabilization work to include approximately 885 miles of road decommissioning, 1,590 miles of road improvement, and 28,250 miles of road maintenance treatments focused on water quality protection. It is important to recognize that the road improvement category includes several types of projects, many of which are site specific, such as culvert upgrades or bridges.

In general, strategic management tools used by Forests statewide to select priority work include roads analysis aquatic risk indicators and fish passage barrier inventory assessments. Forests also rely heavily on access and travel management plans, and watershed or area analyses for project selection. Flood damage; burn area rehabilitation; Healthy Forest Initiative implementation; timber sales; and newly acquired lands or land exchange; partnerships; and external funding sources also influence selection of project work.

Based on a coarse estimate, approximately 15,000 of the total 22,300 miles (or 68 percent) is considered stabilized. The baseline factors used to estimate miles of road stabilized include:

1. Miles of road;
2. Cumulative total of road stabilization accomplishments; and
3. Total miles of road considered low aquatic risk.

As defined here, forest baseline refers to the total miles of road mileage in Year 5. The method for determining miles of roads stabilized involves summation of road decommissioning and improvement (2,475 miles), and miles projected as low aquatic risk (12,539 miles). In spite of the accomplishments of the past 5 years the Forest Service has informed Ecology that it will not be able to meet the 10 and 15 year RMAP milestones.

Washington State Department of Natural Resources

The Washington State forest practices rules require most private forest landowners to prepare and submit a Road Maintenance and Abandonment Plan (RMAP). An RMAP is a forest road inventory and schedule for any repair work that is needed to bring roads up to state standards. An RMAP is prepared by the landowner and approved by DNR.

All large (industrial) forest landowners are required to submit an RMAP. Only some small forest landowners are required to submit an RMAP.

Large Forest Landowners:

Landowners who harvest more than 2 million board feet from their own lands are required to submit an RMAP. All forest roads must be covered under an approved RMAP by December 31, 2005. All RMAPs must be implemented by 2015.

Small Forest Landowners:

Landowners who harvest less than 2 million board feet from their own land may be required to submit a Checklist RMAP. Small forest landowners must submit with each forest practices application or notification a Checklist RMAP for the forest roads covered or affected by the forest practice activity. Small forest landowners may, at any time, submit a Checklist RMAP for their entire ownership.

The following table is a compilation of RMAP data through December 31, 2004. Figures for 2005 will not be available until after this report is submitted. The table incorporates both large and small forest landowners.

Table 4.2
RMAP Data through 12/31/2004

DNR Region	Total # of Approved RMAPs	Miles of Forest Road	Miles of Road Abandoned	Miles of Orphaned Roads	Miles of Fish Passage Opened	# of Structures Removed or Replaced on Fish Bearing Streams
Northeast Region	3,374	8,097	203	88	89	211
Northwest Region	1,600	4,935	637	569	41	128
Olympic Region	418	4,694	74	186	109	151
Pacific Cascade	1,655	21,072	298	550	243	449
South Puget Sound Region	22	6,609	100	174	75	154
Southeast Region	354	2,644	275	377	90	124
Statewide Totals (as of 12/31/04)	7,401	48,051	1,587	1,944	647	1,217

Note. The 2005 figures will not be available until after this report has been submitted.

Urban/Rural Growth

Clearing and Grading Model Ordinance

In 2004, the Department of Community Trade and Economic Development (CTED) received a DIF grant to develop a Model Clearing and Grading Ordinance. Clearing of vegetation and grading of soils for construction activities is known to affect the normal flow and infiltration of rainfall, potentially causing the loss of topsoil and sedimentation of our rivers and streams. Other impacts of land disturbance activities may be a loss of vegetation cover and forest canopy that results in increased runoff volumes and frequency, increased soil erosion, and the invasion of non-native plant species on the subject property, if not properly and promptly re-vegetated. Avoiding or minimizing the impacts of clearing and grading activities to adjacent and downstream public or private property and fish and wildlife habitat is one of the goals for regulating clearing and grading activities.

This model ordinance is just one example of a comprehensive approach to managing clearing and grading activities and is developed to provide local jurisdictions with a model they can use when developing or updating their clearing and grading regulations. The example code (and supporting technical guidance document) is not a state regulation. Instead, the code is intended

to provide an example to local jurisdictions, developers, contractors, and others of different methods to regulate clearing and grading activities in compliance with applicable state and federal laws. The documents have no independent regulatory authority and do not establish new environmental regulatory requirements.

The example code has been developed by reviewing and integrating examples from other adopted city and county ordinances, resource information for clearing and grading provided on the Municipal Research Services Center Web site, the Washington Department of Community Trade and Economic Development's (CTED) *Critical Areas Assistance Handbook (2003)*, and the Washington Department of Ecology's *Stormwater Management Manual for Western Washington (2001)*. Specific western Washington ordinances borrowed from in the development of this example code include the cities of Anacortes, Bellevue, Lake Forest Park, Redmond, and Olympia, and the counties of Jefferson, King, Whatcom, and Klickitat. As a result, the example code captures ways in which a number of different jurisdictions in western Washington have approached various aspects of clearing and grading within their codes while leaving room for jurisdictions to include local preferences. The example code and supporting technical guidance document emphasize the use of techniques to limit land disturbances from clearing and grading, and are designed to be adapted to local needs and conditions.

Current law and regulations, where applicable, require project proponents to obtain a permit or approval prior to the clearing of vegetation or grading of soils prior to construction activity. Some of the performance standards in the example code may not be technically appropriate in all communities. In addition, the process by which building permits are granted may vary between communities. As a result, jurisdictions may choose to regulate clearing and grading through other ordinances or regulations. Neither the example code nor the technical guidance document is intended to represent a minimum threshold below which a local jurisdiction cannot deviate. Nor is the example code meant to imply there is a single appropriate set of rules and principles for the regulation of clearing and grading activities.

Clearing and grading is widely accepted as a necessary practice, but there are certain caveats to making even the most well crafted ordinance effective. First, communities need to have the staff and resources to enforce erosion and sediment control regulations. In addition, any technical manuals referred to in the ordinance need to provide useful guidance on selecting effective clearing and grading, and erosion and sediment control measures. Finally, educating contractors, engineers, and designers is important to successful implementation.

Habitat Alteration

Riparian restoration activities have increased in Washington State. Part of the reason is the realization that a key to controlling runoff from nonpoint sources of pollution is through keeping riparian areas intact. Riparian areas have long been open corridors for cattle grazing, conduits for forest practices, paved over for housing developments, and generally disregarded as an essential environmental amenity.

Many agencies and local governments are now taking steps to protect this valuable resource. The following are examples of riparian restoration in Washington State:

Washington Conservation Corps

The Washington Conservation Corps (WCC) was established in 1983 as a job training program for young adults from the ages of 18-25. The WCC is a continuation of the legacy left by the Civilian Conservation Corps of the 1930s. The program provides work experience and skills for projects that support conservation, rehabilitation, and enhancement of the state's natural, historic, environmental, and recreational resources.

Today the WCC has over 125 members working on projects in every part of the state. WCC partners include National Forests, National Parks, conservation districts, state and local natural resource agencies, tribes, and others.

The purpose of the Washington Conservation Corps ([RCW 43.220](#)) is to provide individuals, ages 18-25, with learning and work experience while addressing resource conservation needs. Members of the Washington Conservation Corps are offered a series of formal and informal learning experiences. While participating in the program, corps members will gain an appreciation for Washington's natural resources and begin to understand the value of resource conservation activities.

During calendar year 2005, the Washington Conservation Corps helped establish and protect riparian areas.

Fence construction – 12.2 miles

Riparian plantings – nearly 6.5 million plants

Conservation Districts

Conservation districts play a critical role in helping to restore critical riparian habitats. They have an especially difficult task in working with landowners who often times cannot afford to install best management practices or who lack the incentives to install BMPs. The most affected riparian locations that conservation districts help restore are located in agricultural areas.

Fence construction – 5.5 miles

Riparian plantings – 35,801 plants

Ecology's Eastern Washington Habitat Restoration Program

The eastern Washington effort to improve riparian corridor health and address livestock impacts accomplished significant results during 2005. The main area of focus for the effort continues to be the Upper and Lower Snake River Water Quality Management Areas (WQMAs). The specific watersheds include Asotin Creek, Tenmile Creek, the Grande Ronde River, and Couse Creek in Asotin County; Alpowa Creek, Pataha Creek, Deadman Creek and Meadow Creek in Garfield County; The Touchet River watershed in Columbia County; the South Fork Palouse River and several small Snake River tributaries in Whitman County; as well as Cow Creek and the Lower Palouse River in Adams and Franklin counties.

Specific results of our riparian improvement efforts include 70 additional site visits and contact with 24 landowners letting them know implementation work will be necessary to protect water quality. Best management practice (BMP) planning and implementation was completed for 35

sites. Monitoring data continues to be collected in these watersheds and shows the water quality benefit of the BMP and riparian work. During the year, 65 miles of riparian buffer (130 miles of fence) were installed in these watersheds as well as other associated water quality BMPs. Other BMPs include off-stream water development, native plantings, livestock crossings, water gaps, relocating of feeding activities, etc.

Fence construction – 130 miles

Education

Lower Hood Canal

The Hood Canal's ecosystem is at risk. For the last several years low levels of dissolved oxygen have been found in the water body, particularly in the southern end. The levels of dissolved oxygen have declined to such an extent that many fish, shellfish, and invertebrate species are threatened. In 2003, the Puget Sound Action Team and the Hood Canal Coordinating Council released a report identifying and quantifying human-related sources of nitrogen that are entering the canal. These sources of nitrogen have been found to supply plankton and algae with enough food to stimulate prolific blooms. These blooms initially raise levels of dissolved oxygen near the surface, but as the algae die and sink to the bottom, the process of decomposition consumes oxygen in the water.

Project Purpose:

The purpose of the project was to develop and implement social marketing strategies to reduce anthropogenic nutrient loading. The program focused around the adoption of landscaping and residential non-point source pollution best management practices to reduce the nutrient content in storm water run-off as well as onsite sewage system operation and maintenance.

Project Description:

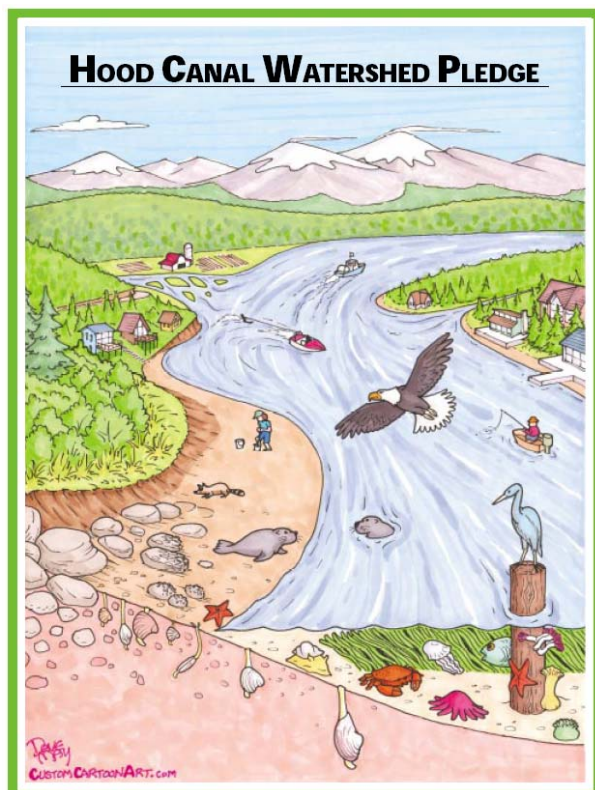
This project focused on the development and implementation of the Hood Canal Watershed Pledge Program modeled on the successful Whatcom County Pledge Program that the Department of Ecology started in 1998. The Hood Canal Watershed Pledge Program (HCWP) booklet was developed, edited, and printed with cooperative input on the best management practices and natural history sections from local health jurisdictions, tribes, conservation districts, the local salmon enhancement group, and other agencies. This booklet then became the basis for the program which was marketed from several different approaches.

Residents of the watershed were able to sign up for the program at 16 different community celebrations (such as the county fairs, 4th of July celebrations, Tahuya Days). Nine presentations were made to community groups that identified the water quality problems were in Hood Canal, and the scientific research underway by the Hood Canal Dissolved Oxygen Program, as well as highlighted actions that could be taken around individual homes and properties. Residents also had the opportunity to obtain a copy of the pledge book (and mail in their pledge card) at 35 locations throughout the watershed such as community centers, the chamber of commerce, Kayak Hood Canal, real estate offices, and local stores.

The HCWP was also promoted by other agencies working directly with landowners in the watershed such as the conservation district and the local health jurisdictions. The Hood Canal Watershed Pledge program worked collaboratively to promote the stewardship opportunities throughout the Canal with the University of Washington Sea-Grant program “Simple Techniques to save Hood Canal” and the WSU Jefferson Co. Extension Program “Shore Stewards.”

Project Results:

The Hood Canal Watershed Pledge was quite successful for its first year. Overall we have reached 1600 residents with the pledge materials via community events, presentations, workshops, mail requests, pick-ups at community locations, and through our partner organizations. We have had 115 participants take the pledge and become involved in the program. Our final evaluation for this year was a survey which measured the rates of follow through on pledge commitments for approximately 35 percent of the participants in the program. These survey results take into account whether or not the participant was already taking part in the action before pledging, whether or not they pledged to try it on their pledge card, and if they are implementing the action now. The actions that participants “pledge” range in levels of



commitment from purchasing less toxic cleaning products to minimizing the clearing of native vegetation during development to planting a buffer strip at the base of any drainage areas to help filter pollutants. The majority of the pledge points had follow through rates equal to those which were pledged or higher, which is quite encouraging. We were also able to gather valuable information pertaining to the barriers people had in taking certain actions, and provide additional one-on-one follow up packages of information for one quarter of those surveyed.

How Success Was Measured:

The success was measured primarily through the survey which provided “before and after” data for pledge participants. We also heard from 87 percent of the participants surveyed that they shared the information with friends, family, or a neighbor which has quite a positive effect for the program. This type of neighbor to

neighbor contact can be critical in reaching out to a community. Whereas some residents are not receptive to a message from an educator, they may be more receptive to the message from a trusted source. As the program becomes more common, a social norm is created which in turn encourages the adoption of practices associated with the program, thereby spreading both the program and practices through the community.

Chapter 5

What Changes in Strategy are Needed to Improve Effectiveness

To determine changes in strategy requires time and information. During this fifth year of plan implementation, we have seen successful implementation of individual actions; however, whether or not the implemented actions have led to improvements in water quality will not be known immediately.

Challenging Issues for 2006

Influencing Local Land Uses

The Department of Community Trade and Economic Development offer a series of educational programs on local planning for interested jurisdictions. Courses are offered throughout the state whenever requested by local communities. It usually takes a minimum of four weeks to set up a course, since all speakers at the course are volunteers. This year the Department of Ecology will prepare materials for a water quality element of the short course curriculum.

The sponsoring local agency or community arranges for the course site, often at city hall or county courthouse. Traditionally, an informal dinner precedes the course at a local restaurant, so that speakers can meet off the record with local elected and appointed officials and staff members. The sponsoring community's only course-related expenses are hosting the three speakers at this informal dinner and providing a mid-evening coffee break.

The speakers usually include a land-use attorney and two planning directors or senior planners. Topics covered include an overview of land-use law in Washington State, updating your comprehensive plan (and involving citizens in the process), and implementing your comprehensive plan while maintaining good working relationships among the Planning Commission, local elected officials, and professional staff. Special topics can be covered as well, depending on your needs. Full three-hour courses have been presented on topics as diverse as "How to prepare and analyze a community survey" to "Planning for water and sewer districts."

The course is generally three hours in duration (6:30 - 9:30 pm or 7:00 - 10:00 pm) with a 15 minute mid-evening coffee break. Each speaker makes brief initial remarks (60 minutes for the legal overview, 30 minutes for each planning presentation) on his or her topic. Questions are appropriate at any time. At the end of the evening, the final half hour is an open forum during which time questions can be asked of any or all speakers. All persons attending the course receive a copy of the current edition of the "Short Course on Local Planning" manual.

Integrating watershed planning with local land use plans

As more counties complete and adopt local watershed plans, there are opportunities to include plan recommendations as comprehensive land use plan policies and development regulations in the next annual plan update cycle. Alternatively, if there are funds and staff time available, subarea plans that focus on specific subbasins can be developed at any time. The state Growth Management Act is designed to operate as a framework within which all land use planning decisions are made. In some cases, the watershed plans are not completed successfully, and are not adopted. Despite this outcome, information obtained through the watershed planning process can inform new land use policies and development regulations. To do this requires some political strategies, coalition building, and sustained effort on the part of some “one” to make the request or suggestion to the local planning office or elected officials, and follow-up efforts to ensure progress is made.

Landscape-scale Characterization for Protecting Aquatic Resources

Several state agencies are partnering to promote the use of landscape-scale characterization methods to better inform land use decisions, and promote resource protection where it makes the most sense, and to set priorities for restoration work with the most promise of long-term success. Recent technical guidance and trainings by the Washington State Department of Ecology will be promoting these methods, and a selection process is underway in 2006 for pursuing suitable pilot projects that can serve as additional examples of this approach.

Outcome Performance Measures

Washington Nonpoint Source Control Management Plan will focus primary attention on attaining the following national targets set by EPA for attaining water quality:

- Reduction in sediment, measured in tons.
- Reduction in nitrogen, measured in pounds.
- Reduction in phosphorus, measured in pounds.

In addition to the national targets, numerous conversations took place with staff from state agencies on the nonpoint workgroup. Through those conversations, we identified the following attainable measurement of success.

- Miles of riparian areas restored.

These can be attained through any of the source control programs and activities identified in this plan. Each activity in the Nonpoint Plan’s Table 5.1 lists a measurable outcome. These are listed under several activities.

Without minimizing the importance of attaining the following outcomes, focused secondary attention will be on the following:

- Other water quality parameters
- Number of people attending water quality education events
- Number of people receiving technical assistance training
- Number of meaningful relationships created and sustained

- Number of high priority water quality projects funded

Tracking these performance measures will occur through grant reports, agency reports, and monitoring activities.

Striving for Success

The actions identified in the plan will require a long-term commitment from federal, tribal, state, local, and private resources. There is no quick fix to pollution that is as endemic as nonpoint pollution. Although Table 5.1 identifies actions to be taken within a relatively short time frame, the efforts embodied in the plan will continue many more years. During the first five years of this plan, the focus of many agencies was to develop the necessary programs to implement the actions in the plan. Each agency determines its own timeline for the actions and reports the timeline to the State Agency Workgroup. Ecology tracks these timelines and project completion for the workgroup. The workgroup also coordinates the timing of interrelated actions.

As programs are developed, the appropriate groups will implement them on the ground. For example, as landowners put BMPs in place, agencies will provide technical and financial assistance when possible. In the meantime, water quality monitoring programs will help us assess the overall improvement to water quality from these nonpoint source control measures. Meaningful improvements take years. The various planning processes such as TMDLs, local watershed plans under Chapter 90.82 RCW, salmon recovery limiting factor analyses under the Salmon Recovery Act, and Puget Sound Watershed Plans under Chapter 400-12 WAC (or their equivalent outside the Puget Sound area) will continue to investigate and identify water quality problems across the state. This plan will provide a toolbox of programs to be used in these areas to address the identified problem. The plan also provides a mechanism through the consistent review process and other feedback to develop programs to address unmet needs that may arise. We're pretty sure that we are doing the right things. We have good processes set up, and we have built strong partnerships that work well. Our citizens are concerned, knowledgeable, and generally support efforts to preserve and improve water quality.

Our challenge in the next five years will be to continue our on-going efforts to strengthen partnerships even more and get better at measuring the effects of our efforts and telling the story of the successes we have achieved.

Appendix A List of Cooperators

Active participation with Washington State's Nonpoint Plan

1. Federal Agencies

Environmental Protection Agency
Natural Resource Conservation Service
United States Forest Service

2. State Lead Agency

Washington State Department of Ecology

3. Other State Agencies

Washington State Department of Agriculture
Washington State Conservation Commission
Department of Community, Trade, and Economic Development
Washington State University Cooperative Extension
Washington State Fish and Wildlife
Washington State Department of Health
Department of Natural Resources
Parks and Recreation Commission
Puget Sound Action Team
Washington State Department of Transportation

4. Local Agencies

Washington Association of Conservation Districts
Local Health Districts
Local Planning Departments
Local Public Work Departments
Special purpose districts.

Appendix B

Table 5.1

Actions to Manage Nonpoint Pollution in Washington State (2005—2010)

Objectives to be fulfilled (See Chapter 3)	Through these Agriculture Activities	Lead Entity--Cooperators	Measurable Outcome	Major Program Linkage
Existing Programs				
Focus funding on most effective strategies	Ag 1: Implement statewide the CIDMP to facilitate development of irrigation district plans	WSDA, CC, ECY, WDFW	Reductions in sediment	Salmon Strategy, Agr-1
Focus funding on most effective strategies	Ag 2: Expand well water protection funding and prioritize technical support and compliance inspections to agricultural producers	WSDA Ecology		
Restore and maintain habitats	Ag 3: Continue to refine and update regulatory program for pesticide applications.	WSDA, ECY		Puget Sound Plan, PS-2
Restore and maintain ecosystems	Ag 4: Provide technical assistance on proper use of pesticides to ensure compliance with pertinent regulations.	WSDA		Puget Sound Plan, PS-2
Restore and maintain ecosystems	Ag 5: Continue to research, develop, test, and evaluate agricultural best management practices.	WSU Ecology	Reductions in sediment	
Support sustainable human communities	Ag 6: Actively engage producer groups in implementing new best management practices.	CC, WSU ECY	Reductions in sediment	Puget Sound Plan, PS-1
Focus funding on most effective strategies	Ag 7: Continue to implement the Conservation Reserve Enhancement Program and look for O&M solutions.	CC	Reductions in sediment	

Objectives to be fulfilled (See Chapter 3)	Through these Agriculture Activities	Lead Entity--Cooperators	Measurable Outcome	Major Program Linkage
Focus funding on most effective strategies	Ag 8: Use SRF low interest loans to help agricultural commodity groups with development and installation of BMPs that water pollution, air pollution, and water use.	ECY		Puget Sound Plan, AG-1
Teach about connections	Ag 9: Provide outreach and education to the agricultural community on riparian area function and management related to agricultural land uses	WSU ECY		Puget Sound Plan, MFH-1
Support sustainable human communities	Ag 10: Implement the Irrigation Efficiencies program statewide.	CC	Reduction in sediment	
Teach about connections	Ag 11: Implement the IPM certification program statewide.	WSU, WSDA	# of new operators certified	Puget Sound Plan, PS-2
Teach about connections	Ag 12: Implement an education and outreach program related to whole farm Phosphorus balance, the Phosphorus Index, and feeding management.	WSU, CC, WSDA	Number of agricultural landowners served. Number of workshops offered	
Teach about connections	Ag 13: Develop environmental marketing pilot project to get agricultural producers to implement BMPs.	WSU, ECU, CC		

Objectives to be fulfilled(See Chapter 3)	Through these Forestry Activities	Lead Entity--Cooperators	Measurable Outcome	Major Program Linkage
Existing Programs				
Restore and maintain habitats	For 1: Implement the forest practices rules that pertain to water quality protection.	DNR, ECY, WDFW, WSDA	Improve water quality in forested habitats; effective compliance; monitoring and enforcement	Salmon Strategy, For-1

Objectives to be fulfilled(See Chapter 3)	Through these Forestry Activities	Lead Entity--Cooperators	Measurable Outcome	Major Program Linkage
Restore and maintain habitats	For 2: Work to obtain federal assurances under the Clean Water Act and the Endangered Species Act for forest practices conducted on non-federal forest lands.	DNR, SRO, WDFW, ECY, WSDA	Federal assurances obtained	Salmon Strategy, For-3
Preserve natural ecosystems	For 3: Continue to implement a state Forest Riparian Easement Program (FREP) to allow timber leases for conservation purposes.	DNR	Number of acres	
Sustain biodiversity	For 4: Continue to implement the Family Forest Fish Passage Program.	DNR	Number of culverts replaced	
Restore and maintain habitats	For 5: Continue to implement the Alternate Plans Program	DNR	Number of alternate plans completed	
Support sustainable human communities	For 6: Carry out functions of the Small Forest Landowners Office that relate to water quality protection.	DNR	Number of small forest landowners served.	Puget Sound Plan, FP-3 Salmon Strategy, For-4
Teach about connections	For 7: Educate small forest landowners on water quality and ESA issues, and new RMAP rules	<u>DNR, WSU,</u> UW, Parks, NRCS, WDFW ECY	Number of small forest landowners served; Number of workshops offered	Salmon Strategy, For-10
Focus funding	For 8: Continue to implement the forest land enhancement program to family forest owners. Provide cost-share funding and education on erosion control, water quality, wetlands, and fish habitat protection.	DNR	Reduction in sediment; improved fish habitat and wetland protection	Salmon Strategy, For-10
Focus funding	For 9: Use SRF low-interest loans to help small forest landowners with implementing BMPs required by the forest practices act.	ECY, DNR		Salmon Strategy, For 10,11
Teach about connections	For 10: Field foresters continue providing technical assistance to landowners and tribes, and to provide enforcement ability	ECY		
Restore and maintain habitats	For 11: Continue participation in forest practices adaptive management program.	ECY		

Objectives to be fulfilled (See Chapter 3)	Through these Forestry Activities	Lead Entity--Cooperators	Measurable Outcome	Major Program Linkage
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New Program Additions for 2005				
Focus funding	For 12: Expand the Urban Community Forestry Program to meet current request for assistance from local governments	DNR, cities	Number of communities with urban forestry programs served	

Objectives to be fulfilled (See Chapter 3)	Through these Urban and Suburban Activities:	Lead Entity--Cooperators	Measurable Outcomes	Major Program Linkage
Existing Programs to Control Stormwater Runoff				
Support sustainable human communities	Urb 1: Continue to provide road maintenance guidelines and technical assistance to local communities.	WSDOT, PSAT, ECU		Puget Sound Plan, SW-3
Support sustainable human communities	Urb 2: Continue to promote low impact development to Washington State communities through assistance, research, and demonstration projects; and by providing assistance to revise existing ordinances and development standards to allow for low impact development.	PSAT, ECY, WSU	Number of local governments with ordinances that allow for or encourage LID	Puget Sound Plan, SW-1
Restore and maintain habitats	Urb 3: Continue to manage runoff from state highways using the updated highway runoff manual.	WSDOT		Puget Sound Plan, SW-4
Support sustainable human communities	Urb 4: Identify and participate in a low impact project and research the applicability of low-impact techniques to regional hydrogeology, soils, and climactic conditions.	PSAT, CTED, ECY	Credits for LID techniques updated in Ecology stormwater manual	Puget Sound Plan SW-1

Objectives to be fulfilled (See Chapter 3)	Through these Urban and Suburban Activities:	Lead Entity--Cooperators	Measurable Outcomes	Major Program Linkage
Restore and maintain habitats	Urb 5: Develop methods and procedures for watershed-based runoff, streamflow, and water quality mitigation measures, with a goal of resource recovery in place of patchwork, incremental mitigation as practiced in the past.	WSDOT		Puget Sound Plan SW-1
Support sustainable human communities	Urb 6: Develop a model clearing and grading ordinance to include low impact development. Partner with resource agencies to utilize regional staff in updating ordinances. Implement a series of workshops around the state on legal obligations of land use planning.	CTED, PSAT		Puget Sound Plan SW-3
Preserve natural ecosystems	Urb 7: Update guidelines and models for consideration by counties and cities on inclusion of Best Available Science and giving special consideration to salmon conservation in their local GMA Critical Areas Ordinances	CTED, PSAT		Puget Sound Plan MFH-2
Support sustainable human communities	Urb 8: Continue to research stormwater technology design, cost benefit and know-how to effectively address stormwater problems. Educate to key audiences about new findings, etc.	ECY, PSAT		Puget Sound Plan SW-7
New Program Additions to Control Stormwater Runoff for 2005				
Support sustainable human communities	Urb 9: Educate key audiences in the best available science in Pacific Northwest stormwater management and low impact development techniques.	WSDOT, WSU ECY, WDFW, PSAT	Number of local governments assisted. Number of developers and consultants served.	Salmon Strategy, Rea-4 Puget Sound Plan, SW-3
Support sustainable human communities	Urb 10: Promote adoption of Ecology's stormwater manual and other elements of a comprehensive stormwater program..	ECY, PSAT	Number of local governments adopting manual	Puget Sound Plan, SW-2.4
Preserve natural ecosystems	Urb 11: Assess the impacts of urban and highway stormwater runoff on the quality of tideland, shoreland, and bedland sediments as well as biological resources and habitat, with particular emphasis on urban embayments in Puget Sound.	DNR, ECY, DOH, Sea Grant, PSAT, WDFW	Number of acres impacted.	Puget Sound Plan SW-4

Objectives to be fulfilled (See Chapter 3)	Through these Urban and Suburban Activities:	Lead Entity--Cooperators	Measurable Outcomes	Major Program Linkage
On-site Sewage Systems				
Teach about connections	Urb 12: Support local health jurisdictions in developing an effective education program on the importance of properly maintaining their onsite systems and how to do that.	DOH, PSAT		Puget Sound Plan, OS-2
Support sustainable human communities	Urb 13: Continue to work on the rule development process leading to adoption of new and revised rules by the Washington State Board of Health for on-site sewage systems up to 3500 gallons per day.	DOH, PSAT, ECY	Final rule	Puget Sound Plan, OS-1
Support sustainable human communities	Urb 14: Continue to work on the rule development process leading to adoption of new and revised rule large on-site sewage systems over 3500 gallons per day by the Washington State Board of Health.	DOH, PSAT, ECY	Final rule	Puget Sound Plan, OS-1
Focus funding	Urb 15: Continue to review and oversee the planning, design, construction, and operation of large on-site systems.	DOH, ECY		Puget Sound Plan, OS-4
Focus funding	Urb 16: Assist further development of local health districts capacity to manage their onsite sewage system inventory with electronic databases.	DOH, PSAT	Number of local health districts with GIS capacity for managing OSSS	Puget Sound Plan, OS-2
Focus funding	Urb 17: Test innovative approaches for providing funds to homeowners to repair failing onsite systems.	DOH	% reduction of nutrients by tested units	
Focus funding	Urb 18: Inventory, prioritize, and repair failing onsite septic systems owned by Washington State Parks.	Parks	Number of systems repaired	
Teach about connections	Urb 19: Test innovative approaches for onsite systems that remove nutrients during treatment.	PSAT	lbs of nutrients removed	Puget Sound Plan, OS-5
New Program Additions for 2005				
Teach about connections	Urb 20: Develop educational activities necessary for implementing new and revised rules for on-site sewage systems up to 3500 gallons per day.	DOH	Number of people trained	
Focus funding	Urb 21: Develop and share technical and administrative guidance to assist local health jurisdictions in the development and implementation of risk-based management plans.	DOH, PSAT		Puget Sound Plan, OS-2
Preserve natural ecosystems	Urb 22: Develop pilot program to address water quality violations associated with onsite sewage systems in sensitive areas	ECY, DOH, PSAT		

Objectives to be fulfilled (See Chapter 3)	Through these Recreational Activities	Lead Entity-Cooperators	Measurable Outcomes	Major Program Linkage
Existing Programs				
Preserve natural ecosystems	Rec 1: Continue to implement the Comprehensive Boat Sewage Management Plan for Washington State.	Parks, PSAT	Reduction in F. coliform	Puget Sound Plan, MB-3
Focus funding	Rec 2: Help fund local health districts to address pollution problems identified by the BEACH Program	DOH	Reduction in F. coliform	
Restore and maintain degraded ecosystems	Rec 3: Continue to implement the beach monitoring and notification program for recreational marine waters contaminated with nonpoint source pollution.	ECY, DNR, DOH		
New Program Additions for 2005				
Teach about connections	Rec 4: Fund education to prevent small oil spills and for citizen responses to oil spills.	ECY		Puget Sound Plan, MB-4 and SP-4
Preserve natural ecosystems	Rec 5: Assess the impact of nonpoint source pollution on nearshore marine vegetation with specific emphasis on the impacts of urban stormwater.	DNR, ECY, Sea Grant, WDFW, PSAT	Identify key factors related to nonpoint pollution and loss of nearshore aquatic vegetation.	
Restore and maintain degraded ecosystems	Rec 6: Sample a cross-section of marinas in different physical settings around the state to determine if water quality standards are being met during peak use periods of the summer.	DNR, ECY, DOH, Sea Grant, PSAT	Number or percentage of marinas meeting water quality standards.	

Objectives to be fulfilled (See Chapter 3)	Through these Recreational Activities	Lead Entity-Cooperators	Measurable Outcomes	Major Program Linkage
Restore and maintain degraded ecosystems	Rec 7: Assess the impacts of urban and highway stormwater runoff on the quality of tideland, shoreland, and bedland sediments with particular emphasis on urban embayments in Puget Sound.	DNR, ECY, DOH, Sea Grant, PSAT, WDFW	Number of acres of tidelands, shorelands and bedlands impacted by urban stormwater and highway runoff.	

Objectives to be fulfilled (See Chapter 3)	Through Habitat Alteration Activities	Lead Entity-Cooperators	Measurable Outcome	Major Program Linkage
Existing Programs				
Restore and maintain degraded ecosystems	Hab 1: Prioritize and coordinate restoration projects on a watershed basis.	PSAT, ECY, WDFW	Miles of riparian areas restored	Puget Sound Plan, MB-4 and SP-4
Sustain biodiversity	Hab 2: Provide critical information, technical guidance, and maps to support local government's revisions to their Critical Areas Ordinances.	PSAT, CTED, WDFW		Puget Sound Plan, MFH-1
Sustain biodiversity	Hab 3: Provide outreach and educational materials on the Aquatic Habitat Guidelines.	WDFW, ECY, WSDOT, PSAT	Number of workshops	Puget Sound Plan, MFH-2
Sustain biodiversity	Hab 4: Train local, state, and tribal staff on Aquatic Habitat Guidelines.	WDFW, ECY, WSDOT, PSAT	Number of staff trained	Puget Sound Plan, MFH-2
Teach about connections	Hab 5: Continue to develop and disseminate educational materials in multi-media formats on the benefits and methods of riparian restoration.	WDFW, ECY, PSAT		Puget Sound Plan, MFH-2

Objectives to be fulfilled (See Chapter 3)	Through Habitat Alteration Activities	Lead Entity-Cooperators	Measurable Outcome	Major Program Linkage
Restore and maintain degraded ecosystems	Hab 6: Develop additional needed Aquatic Habitat Guidelines (e.g., stream crossings, marine shorelines protection, marine habitat restoration, treated wood, etc.)	WDFW, ECY, WSDOT, PSAT		
Restore and maintain degraded ecosystems	Hab 7: Continue to implement the Puget Sound Wetland Restoration Program.	ECY, PSAT	Acres of wetlands restored	Puget Sound Plan, MFH
Sustain biodiversity	Hab 8: Develop wetland guidance documents based on the best available scientific information for use by local governments in developing wetland protection regulations under the GMA and the SMA.	ECY, PSAT, CTED		
Sustain biodiversity	Hab 9: Conduct wetland training workshops for local governments to assist them in implementing local wetland regulatory programs.	ECY	Number of workshops	
Preserve natural ecosystems	Hab 10: Develop new guidance on wetland mitigation plans	ECY		
Focus funding	Hab 11: Develop a compliance tracking and enforcement program for agency permitted wetland mitigation projects.	ECY		
Preserve natural ecosystems	Hab 12: Prevent, control, and monitor the spread of aquatic nuisance species and increase the capacity of watershed groups to do the same.	WSDA, ECY, WSU, Parks, WDFW, DNR, PSAT,	Reduction in areas where nuisance species exist	Salmon Strategy, Lan-13 Puget Sound Plan, ANS-3
New Program Additions for 2005				
Support sustainable human communities	Hab 13: Provide technical assistance and education to support Shoreline Master Program updates	ECY, PSAT		Puget Sound Plan, MFH-2
Teach about connections	Hab 14: Provide technical assistance to local governments on functions and processes of nearshore habitat.	ECY, PSAT		Puget Sound Plan, MFH-2
Restore and maintain degraded ecosystems	Hab 15: Develop a strategy to remove creosote logs from public and state beaches, wetlands, and parks.	Parks	Number of logs removed	

Objectives to be fulfilled (See Chapter 3)	Through Habitat Alteration Activities	Lead Entity-Cooperators	Measurable Outcome	Major Program Linkage
Restore and maintain degraded ecosystems	Hab 16: Assess the impacts of nonpoint source pollution on nearshore marine vegetation with specific emphasis on the impacts of urban stormwater.	DNR, ECY, Sea Grant, WDFW, PSAT	Acres of nearshore habitat loss	Puget Sound Plan MFH-1.4
Preserve natural ecosystems	Hab 17: Find a volunteer watershed planning community to begin the task of identifying conservation targets for maintaining biological diversity within an aquatic ecological system.	ECY, CTED, WDFW, IAC, PSAT		
Restore and maintain degraded ecosystems	Hab 18: Provide WCC crews in each Ecology regions.	ECY		

Objectives to be fulfilled (See Chapter 3)	Through these Educational Activities:	Lead Entity-Cooperators	Measurable Outcomes	Major Program Linkage
Existing Programs				
Teach about connections	Ed 1: Organize a biennial conference on nonpoint pollution.	WSU, ECY		
Teach about connections	Ed 2: Continue to develop, upgrade, enhance environmental learning centers across the state	Parks		Puget Sound Plan, EPI-3
Teach about connections	Ed 3: Continue implementing PROJECT WET.	ECY	Number of students participating	
Teach about connections	Ed 4: Continue implementing the Columbia Watershed Curriculum.	ECY, WSU	Number of students participating	
Teach about connections	Ed 5: Continue to implement the Chehalis Basin Education and Consortium Water Quality Monitoring Program	ECY, WSU	Number of students participating	
Teach about connections	Ed 6: Introduce and support Master Watershed Steward Programs across the state.	WSU, ECY	Number of individual served; Number of	

Objectives to be fulfilled (See Chapter 3)	Through these Educational Activities:	Lead Entity-Cooperators	Measurable Outcomes	Major Program Linkage
			workshops offered	
Teach about connections	Ed 7: Develop and implement statewide training programs for the public and specific interest groups, such as real estate professionals, conservation district staff, planners, watershed group members, developers, and agriculture professionals.	WSU, ECY, WDFW, WSWSDOT, Parks	Training developed and presented	Salmon Strategy, Edu-6
Support sustainable human communities	Ed 8: Support existing community outreach programs to help reach TMDL goals.	WSU, ECY	Number of volunteers trained. Number of hours volunteered.	
Teach about connections	Ed 9: Administer the PIE program for common objectives with the Puget Sound work plan.	PSAT	# of projects funded	Puget Sound Plan EPI-1.5

New Program Additions for 2005				
Teach about connections	Ed 10: Develop water quality outreach programs to minority populations.	ECY, PSAT		Puget Sound Plan, EPI-1.5
Teach about connections	Ed 11: Develop and present water quality education in classrooms and events as requested.	ECY, WSU	Number of students	
Teach about connections	Ed 12: Educate and engage the public in activities to correct and prevent nutrient pollution in Hood Canal.	PSAT, WSU	Number of people attending activities	Puget Sound Plan, EPA-1
Focus funding	Ed 13: Support building local capacity for public education on water quality.	PSAT, ECY, WSU		Puget Sound Plan, EPI-1
Support sustainable human communities	Ed 14: Develop a water quality component for the continuing education program for local officials.	CTED, ECY, DNR, WSU, Parks	Number of workshops	
Teach about connections	Ed 15: Implement Healthy Water/Healthy People curriculum.	ECY, WSU,	Number of students	

Objectives to be fulfilled (See Chapter 3)	Through these General Program Activities <i>Programs that have multiple impacts or are administrative in nature</i>	Lead Entity-Cooperators	Measurable Outcome	Program Linkage
Existing Programs				
Preserve natural ecosystems	Gen 1: Continue to emphasize phase 1 and phase 2 lake planning efforts to control nonpoint source pollution	ECY	Number of lakes protected	
Support sustainable human communities	Gen 2: Continue to promote local watershed planning and implementation.	ECY, PSAT	Number of watershed-based plans supported under this plan	Puget Sound Plan, WP-6
Restore and maintain degraded ecosystems	Gen 3: Continue to develop TMDLs and detailed implementation plans to address waters impacted by nonpoint source pollution.	ECY	Number of TMDLs developed	Puget Sound Plan, NP
Restore and maintain degraded ecosystems	Gen 4: Develop and implement a statewide lakes management program addressing TMDLs.	ECY		
Restore and maintain degraded ecosystems	Gen 5: Continue to emphasize lake and watershed management planning to address nutrient and sediment enrichment, and de-emphasize the use of chemicals for pest control	ECY	lbs of nutrients removed	
Restore and maintain degraded ecosystems	Gen 6: Implement the Yakima River Sediment Reduction Plan	ECY	Tons of sediment reduced	
New Program Additions for 2005				
Support sustainable human communities	Gen 7: Create a toolbox for solutions to nonpoint source problems that includes grant project reports and products as well as agency products, and make the toolbox available on the internet.	ECY		
Support sustainable human communities	Gen 8: Develop clean water indicators for sustainable communities. Work with communities to forward their adoption.	WSU, PSAT, ECY, CTED		
Restore and maintain degraded habitats	Gen 9: Support local corrective actions and programs to reduce human-related pollution and nutrient input into Hood Canal to address the low dissolved oxygen problem.	ECY, PSAT	Number of corrective actions	Puget Sound Plan 05-07 workplan priority 4
Restore and maintain degraded habitats	Gen 10: Develop a social marketing for clean water project for statewide application. Use the campaign to increase citizen's awareness of how their actions affect water quality and what they can do to improve water quality.	ECY, CTED		

Objectives to be fulfilled (See Chapter 3)	Through these General Program Activities <i>Programs that have multiple impacts or are administrative in nature</i>	Lead Entity-Cooperators	Measurable Outcome	Program Linkage
Shellfish Protection				
Restore and maintain degraded ecosystems	Gen 11: Continue to implement the shellfish closure response strategy.	DOH, ECY, PSAT	Acres of commercial shellfish beds with improved classifications	Puget Sound Plan, SF-7
Focus funding	Gen 12 Automate nonpoint source data collection and reporting in shellfish growing areas.	DOH		
Shellfish Protection continued				
Restore and maintain degraded ecosystems	Gen 13: Conduct source identification monitoring in shellfish growing areas threatened or impaired by nonpoint source pollution.	DOH		Puget Sound Plan, SF-2
Preserve natural ecosystems	Gen 14: Provide guidance on land use measures to protect shellfish from impacts of urbanization.	CTED, DOH, PSAT		Puget Sound Plan, SF-2
Preserve natural ecosystems	Gen 15: Develop a model shellfish guidance that addresses nonpoint source pollution.	CTED, DOH		
Existing Programs				
Teach about connections	ME 1: Develop protocols for performing nonpoint source monitoring throughout Washington State.	ECY		
Focus funding on most effective strategies	ME 2: Monitor the effectiveness of corrective actions for nonpoint TMDLs, BMPs, and other watershed based plans.	ECY	Effectiveness of TMDLs, BMPs, and watershed based plans	
Restore and maintain degraded systems	ME 3: Monitor nitrates and pesticide runoff from agricultural lands.	WSDA, ECY		

Objectives to be fulfilled (See Chapter 3)	Through Monitoring and Enforcement activities - <i>Programs that monitor water quality or enforce water quality standards</i>	Lead Entity-Cooperators	Measurable Outcome	Major Program Linkage
Existing Programs				
Teach about connections	ME 1: Develop protocols for performing nonpoint source monitoring throughout Washington State.	ECY		
Focus funding on most effective strategies	ME 2: Monitor the effectiveness of corrective actions for nonpoint TMDLs, BMPs, and other watershed based plans.	ECY	Effectiveness of TMDLs, BMPs, and watershed based plans	
Restore and maintain degraded systems	ME 3: Monitor nitrates and pesticide runoff from agricultural lands.	WSDA, ECY		

Objectives to be fulfilled (See Chapter 3)	Through Monitoring and Enforcement activities - <i>Programs that monitor water quality or enforce water quality standards</i>	Lead Entity-Cooperators	Measurable Outcome	Major Program Linkage
Restore and maintain degraded systems	ME 4: Continue developing TMDL technical reports.	ECY	Number of reports	
Teach about connections	ME 5: Continue to implement ground water pesticide monitoring to support PMPs and ESA water quality and toxicological assessments.	WSDA		
Restore and maintain degraded systems	ME 6: Continue to monitor the implementation of forest practice rules statewide.	DNR, ECY, WDFW	Compliance monitoring report	

New Program Additions for 2005				
Teach about connections	ME 7: Using existing monitoring data, identify water bodies high in phosphorus, nitrates, and sediments.	ECY, PSAT	List of water bodies	
Teach about connections	ME 8: Report to the public on monitoring trends in Puget Sound through the Puget Sound Ambient Monitoring Program.	PSAT	List of reports issued and copies distributed	Puget Sound Plan, M-1
Enforcement				
Restore and maintain degraded ecosystems	ME 9: Increase compliance and enforcement activities for nonpoint pollution sources.	ECY	Number of enforcement actions	
Restore and maintain degraded ecosystems	ME 10: Investigate agricultural related complaints and assist in development and implementation of farm plans.	ECY, CC	Number of complaints attended	